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PATENT APPLN. NO. 10/800,913
RESPONSE UNDER 37 C.F.R. §1.111

PATENT
NON-FINAL

IN THE CLAIMS:

1. (canceled)

2. (currently amended) A medical valve, to which a male luer is to be separably connected, comprising:

(a) a housing having a hollow body opened at the top end, wherein the tip of the male luer is to be removably inserted in the housing;

(b) a solid spike disposed to extend longitudinally in the housing, the spike except at least the top end portion being formed in ~~[[an]]~~ a shape approximately tapered upwardly, wherein a groove-shaped fluid transferring passage, which is opened radially outwardly, is formed to extend ~~longitudinally through the entire longitudinal length~~ in the peripheral surface of the spike, the bottom portion of the fluid transferring passage being connected to a fluid circuit; and

(c) an elastic seal having an elastically deformable tubular shape fitted on the spike to seal the spike, the elastic seal comprising a top end portion having an openable/closable portion to be openably closed over the spike, wherein the elastic seal is elastically deformed to be downwardly ~~[[shrunk]]~~ compressed by downward pressure due to the tip of the male luer, thereby the

openable/closable portion is brought into abutment with the spike, and is elastically deformed to be opened radially outwardly to be fitted onto the spike, so that the inside of the male luer communicates with the fluid transferring passage of the spike.

3. (currently amended) A medical valve, to which a male luer is to be separably connected, comprising:

(a) a housing having a hollow body opened at the top end, wherein the tip of the male luer is to be removably inserted in the housing;

(b) a spike disposed to extend longitudinally in the housing, the spike except at least the top end portion being formed in [[an]] a shape approximately tapered upwardly, wherein a fluid transferring passage, which is opened radially outwardly, is formed to extend longitudinally in the spike, the bottom portion of the fluid transferring passage being connected to a fluid circuit; and

(c) an elastic seal having an elastically deformable tubular shape fitted on the spike to seal the spike, the elastic seal comprising a top end portion having an openable/closable portion to be openably closed over the spike, wherein the elastic seal is elastically deformed to be downwardly [[shrunk]] compressed by downward pressure due to the tip of the male luer, thereby the

openable/closable portion is brought into abutment with the spike, and is elastically deformed to be opened radially outwardly to be fitted onto the spike, so that the inside of the male luer communicates with the fluid transferring passage of the spike,

wherein the spike comprises:

(i) a joining portion constituting the top end portion of the spike; and

(ii) a plurality of branch portions, which constitutes the remaining portion of the spike, formed integrally with the joining portion to branch off downwardly from the joining portion,

and wherein the fluid transferring passage is defined between the branch portions.

4. (currently amended) A medical valve, to which a male luer is to be separably connected, comprising:

(a) a housing having a hollow body opened at the top end, wherein the tip of the male luer is to be removably inserted in the housing;

(b) a spike disposed to extend longitudinally in the housing, the spike except at least the top end portion being formed in [[an]] a shape approximately tapered upwardly, wherein a fluid transferring passage, which is opened radially outwardly, is formed

to extend longitudinally in the spike, the bottom portion of the fluid transferring passage being connected to a fluid circuit; and

(c) an elastic seal having an elastically deformable tubular shape fitted on the spike to seal the spike, the elastic seal comprising a top end portion having an openable/closable portion to be openably closed over the spike, wherein the elastic seal is elastically deformed to be downwardly ~~[[shrunk]]~~ compressed by downward pressure due to the tip of the male luer, thereby the openable/closable portion is brought into abutment with the spike, and is elastically deformed to be opened radially outwardly to be fitted onto the spike, so that the inside of the male luer communicates with the fluid transferring passage of the spike,

wherein the spike comprises a plurality of divided bodies which are formed into one pair in axial symmetry and extend ~~extending~~ along the entire longitudinal length thereof,

and wherein the fluid transferring passage is defined between the divided portions.

5. (currently amended) A medical valve, to which a male luer is to be separably connected, comprising:

(a) a housing having a hollow body opened at the top end, wherein the tip of the male luer is to be removably inserted in the housing;

(b) a spike disposed to extend longitudinally in the housing, the spike except at least the top end portion being formed in [[an]] shape approximately tapered upwardly, wherein a fluid transferring passage, which is opened radially outwardly, is formed to extend longitudinally in the spike, the bottom portion of the fluid transferring passage being connected to a fluid circuit;

(c) an elastic seal having an elastically deformable tubular shape fitted on the spike to seal the spike, the elastic seal comprising a top end portion having an openable/closable portion to be openably closed over the spike, wherein the elastic seal is elastically deformed to be downwardly [[shrunk]] compressed by downward pressure due to the tip of the male luer, thereby the openable/closable portion is brought into abutment with the spike, and is elastically deformed to be opened radially outwardly to be fitted onto the spike, so that the inside of the male luer communicates with the fluid transferring passage of the spike,

wherein the spike comprises:

(i) ~~a plurality of~~ two main portions extending along the entire longitudinal length of the spike; and

(ii) a bridge portion formed integrally with the main portions and disposed between the main portions to join the main portions together,

wherein the fluid transferring passage is defined between the main portions.

6. (currently amended) A medical valve, to which a male luer is to be separably connected, comprising:

(a) a housing having a hollow body opened at the top end, wherein the tip of the male luer is to be removably inserted in the housing;

(b) a spike disposed to extend longitudinally in the housing, the top end portion of the spike having an approximately cylindrical shape and solid structure, the top end surface of the spike being an approximately hemispherical surface which is upwardly convex, the spike except the top end portion being formed in an approximately tapered shape in which the outside diameter becomes progressively smaller toward the top end, wherein a fluid transferring passage, which is opened radially outwardly, is formed to extend longitudinally in the peripheral surface of the spike; the bottom portion of the fluid transferring passage being connected to a fluid circuit;

(c) an elastic seal having an elastically deformable tubular shape fitted on the spike to seal the spike, the elastic seal comprising a top end portion having an openable/closable portion to be openably closed over the spike, wherein the elastic seal is elastically deformed to be downwardly ~~[[shrunk]]~~ compressed by downward pressure due to the tip of the male luer, thereby the openable/closable portion is brought into abutment with the spike, and is elastically deformed to be opened radially outwardly to be fitted onto the spike, so that the inside of the male luer communicates with the fluid transferring passage of the spike.

7. (currently amended) A medical valve according to ~~claim 1~~ claim 2, wherein the spike comprises at least three fins projecting radially outwardly from the axial portion,

and wherein the fluid transferring passages are defined between adjacent ones of the fins.

8. (original) A medical valve according to claim 7, wherein the fins are circumferentially spaced from one another at equal intervals,

the edge of each of the fins being placed in abutment with the inside surface of the elastic seal.

9. (original) A medical valve according to claim 8, wherein a portion of the elastic seal, which is brought in abutment with the fins, has a cross section of an approximately polygonal shape.

10. (currently amended) A medical valve according to ~~claim 1~~ claim 2, wherein the bottom portion of the spike is inserted in and fixed to the housing.

11. (currently amended) A medical valve according to ~~claim 1~~ claim 2, wherein the central portion of the bottom surface of the openable/closable portion is made approximately flat and is opposed to the top end of the spike across a gap.

12. (currently amended) A medical valve according to ~~claim 1~~ claim 2, wherein a ring-shaped projection, which projects radially inwardly and is placed in abutment with the top end portion of the spike, is formed to extend around approximately the entire circumference of the inside surface of the top portion of the elastic seal.

13. (currently amended) A medical valve according to ~~claim 1~~ claim 2, wherein the elastic seal except the openable/closable

portion and the bottom end portion has a bellows-shaped shrinkable portion.

14. (currently amended) A medical valve according to ~~claim 1~~
claim 2, wherein the top end surface of the housing and the top end
surface of the elastic seal are made substantially flush with each
other.